Atty. Dkt. No. 027053-0107

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Angela BELCHER et al.

Title: PEPTIDE MEDIATED SYNTHESIS OF METALLIC AND MAGNETIC MATERIALS

Appl. No.: 10/665,721

Filing Date: 09/22/2003

Examiner: Teresa D. Wessendorf

Art Unit: 1639

DECLARATION UNDER 37 C.F.R. 1.132

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

I, Angela Belcher, hereby declare and say that:

1. I am a citizen of the United States.

2. I am a co-inventor of the subject matter presently claimed in the above-captioned application.

3. I am familiar with the Office Action mailed on April 21, 2006. I am also familiar with the currently pending claims and the description in the above-captioned application.

4. In addition to demonstrating that multiple peptides can be obtained which selectively bind to each of Co, CoPt, SmCo5, and FePt in our patent application, my lab has further obtained peptides that selectively bind to Au, Ag, Pt, Ni, Cu, Fe, and Ce. In my

opinion, this is a diverse group of metals which shows that the technique of our patent application should work with any pure metal, metal alloy, or magnetic metals.

5. Furthermore, our lab has not yet encountered a metal for which a selectively binding peptide cannot be generated using the technique described in our patent application. Using the detailed description in our patent application, even undergraduate students have successfully employed the method to generate peptides that selectively bind Au, Ag, Pt, and Cu. In my opinion, given the detailed description of our patent application, a person of ordinary skill in this field can produce peptides that selectively bind to a wide range of metal nanoparticles using no more than routine experimentation.

6. I have also reviewed the peptides of Kresse, cited in the Office Action. There is no evidence that Kresse's peptides would selectively bind to iron. A peptide which is shown to have affinity for a metal nanoparticle would not necessarily be capable of selectively binding to that metal nanoparticle.

7. In addition, I have compared the Kresse sequences having iron affinity to certain peptides identified in our lab that are known as universal binders, which means they are non-selective metal-binding peptides. This comparison shows a high degree of sequence similarity between Kresse's peptides and 2 peptides shown by our lab to be non-selective, as illustrated in the following sequence alignment:

Kresse:	RRTVKHHVN	RRSRHH	RSKRGR
our non-selective peptides:	RRS__HH	RRS_HH	LSR....RGR

The complete sequence of the non-selective, metal-binding peptides identified by our lab are: A08 wt: -RSGRRRSHHHRL* and A08 Sc: -HRGRRLSRSHRH. AO8 Sc is a scrambled version of A08 wt, which is also a non-selective metal binding peptide, indicating that the order of the amino acids does not matter. Both A08 wt and A08 Sc bind to metal and to other materials, including CdS, GaN, and Al.

8. In my opinion, based on the similarity of Kresse's 3 peptides to our universal binders, A08 wt and A08 Sc, it is likely that Kresse's 3 peptides are non-selective, meaning that they would bind to other materials.

9. I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent resulting therefrom.

09/06/08
Date

Angela Belcher